



September 6, 2006

Mary L. Cottrell, Secretary
Department of Telecommunications and Energy
One South Station, 2nd Floor
Boston, Massachusetts 02110

RE: Department Investigation into G.L. c. 164, § 116B, D.T.E. 06-48

Dear Secretary Cottrell:

On May 19, 2006, the Department of Telecommunications and Energy ("Department") issued an Order opening an investigation into compliance with the gate box maintenance and improvement requirements of G.L. c. 164, § 116B ("Section 116B"), by gas companies and municipal gas departments established under the provisions of Chapter 164 ("the Gas Operators"). See, Investigation re: Compliance with G.L. c. 164, § 116B, D.T.E. 06-48 (2006).

For the purposes of this filing, the Gas Operators are:

- Bay State Gas Company
- The Berkshire Gas Company
- Blackstone Gas Company
- Fitchburg Gas and Electric Light Company d/b/a Unitil
- Holyoke Gas and Electric Department
- KeySpan Energy Delivery-New England
- Middleborough Gas and Electric Department
- New England Gas Company
- NSTAR Gas Company
- Wakefield Municipal Gas and Light Department
- Westfield Gas and Electric Light Department.

The Department conducted a public hearing and procedural conference on June 15, 2006. Following the hearings, the Department requested additional information from the Gas Operators addressing questions raised at the hearings and by organizations filing comments.

On July 21, 2006, the Northeast Gas Association ("NGA"), on behalf of the Operators, filed a joint report ("Joint Report") that responded to the issues raised by the Department and the commenters to this proceeding.

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On August 16, 2006, the Department requested that the Operators file supplementary documentation to support estimates provided in the Joint Report regarding an expansion of the annual critical valve inspection requirement to include all valves. In addition, the Department requested additional documentation on the actual cost to inspect critical valves in 2005.

On behalf of the Gas Operators, NGA submits the attached supplementary comments requested by the Department.

NGA is a regional trade association that focuses on education and training, technology, research and development, operations, planning, and increasing public awareness of natural gas in the Northeast U.S. NGA represents natural gas distribution companies, transmission companies, a liquefied natural gas importer and associate member companies. These companies provide natural gas to nearly 9 million customers in eight states (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont).

NGA appreciates the opportunity to present the information contained in this report and to assist the Department in its review of this topic. Please do not hesitate to contact me if you have any questions.

Respectively submitted,

A handwritten signature in black ink, appearing to read "Thomas M. Kiley". The signature is fluid and cursive, with a large, sweeping initial "T".

Thomas M. Kiley
President

Attachment

SUPPLEMENTAL COMMENTS OF THE GAS OPERATORS
September 6, 2006

On August 16, 2006, the Department of Telecommunications and Energy (“the Department”) issued a request for supplemental comments from the Gas Operators¹ in Department Investigation re: Compliance with G.L. c. 164, § 116B, D.T.E. 06-48. Specifically, the Department requested that the Gas Operators provide supporting documentation in relation to three issues covered in the initial comments of the Gas Operators. The response of the Gas Operators is as follows:

(1) Explain, with supporting documentation:

- (a) how the Operators arrived at the cost estimate for a program which would inspect every valve box in the Commonwealth (e.g., the components of these estimated costs);**
- (b) whether this is an estimated annual cost, or one-time cost for inspecting all of the valve boxes in the state.**

As discussed in the initial comments of the Gas Operators, all underground valves located on a distribution system are housed by a gate box in accordance with state and federal law. However, not all valves (and valve boxes) that may be located on a distribution system are required to be installed by state and/or federal law, nor do all valves have the same importance or benefit in operating the system or in responding to an emergency. The cost of installing a valve on the underground system at the time that gas mains and services are installed is minimal because of the efficiency of installing the valve at the time of construction when the street is open and crews are on-site to complete

¹ For the purposes of this proceeding, the “Gas Operators” are: Bay State Gas Company, The Berkshire Gas Company, Blackstone Gas Company, Fitchburg Gas and Electric Light Company d/b/a Unitil; Holyoke Gas and Electric Department, KeySpan Energy Delivery-New England, Middleborough Gas and Electric Department, New England Gas Company, NSTAR Gas Company, Wakefield Municipal Gas and Light Department and Westfield Gas and Electric Light Department.

the installation. Therefore, it is the routine practice of the Gas Operators to install valves throughout the system during construction to serve any number of purposes such as facilitating future growth or enabling routine maintenance on the system. In addition, a valve box may be installed on a service line at the curb even though it is redundant to a shut-off valve installed on the same line at the (outside) meter set. Moreover, not all underground valves are located within a public roadway, street or sidewalk, which is the area covered by Section 116B.

As a result, the Attorney General's recommendations to: (1) define "gate boxes" to include any distribution main or service line valve in a box that may be "useful in an emergency;" and (2) expand the operator annual valve inspection requirements (beyond critical valves) to include all valves defined as gate boxes, would establish a new and extremely broad standard that would impose substantial cost on Massachusetts customers without a countervailing improvement in the public safety. In fact, to attempt to meet this requirement, the Gas Operators would have to initiate a large-scale mobilization of resources that would supplant other operations and maintenance efforts.

To comply with this broad extension of current law and regulation, the Gas Operators would need to approach the effort in two stages. In "Stage 1," the Gas Operators would have to perform a large-scale initial sweep of the system to inspect and, as necessary, to raise, repair and/or maintain every gate box located on the system, regardless of the location, function, type or criticality of that valve. Prior to Section 116B, there was no requirement under law or regulation to ensure that, following installation in accordance with state and federal law, gate boxes are "easily and immediately accessible," except in the case of critical valves. Moreover, Section 116B

applies only to gate boxes located in the “streets, roads or sidewalks to be repaired” as part of a state or municipal paving project. Therefore, implementation of Stage 1 would require a substantial, statewide effort involving inspections, excavations, repair and maintenance, repaving, dig-safe compliance and other related activities. Stage 2 represents the “steady state” following the initial sweep and includes annual inspections, and as necessary, raising, repairing and maintaining all gate boxes on a system regardless of the location, function, type or criticality of that valve.

In their initial comments, the Gas Operators estimated that the Attorney General’s recommendation to establish an inspection and maintenance program that would require annual inspections of all valve boxes located on a distribution main or service line and “useful” in an emergency would cost in the range of \$150 million to \$200 million on a statewide basis given the vast number of valves that would be involved. This amount was intended to represent the one-time cost of completing Stage 1, and did not contemplate the cost of annual inspections of all gate boxes on an operator’s system on a going forward basis. In this filing, the Gas Operators have also estimated the cost of “Stage 2” inspections, which represents the recurring annual cost of implementing an annual inspection cycle for all gate boxes located on the respective systems following the initial sweep of the system.

In reviewing the information developed for this filing by the Gas Operators, three items are of note:

First, the original estimate set out in the comments of the Gas Operators was based on a rough approximation discussed by the Gas Operators in developing the comments without performing specific cost calculations or analysis on a system-specific

basis. To respond to the Department's request for supplemental comments, the Gas Operators developed a common template and identified common cost categories in order to more precisely analyze the costs associated with this proposal.² The results of this analysis is set forth for each Gas Operator in the attached schedules. As shown therein, the estimated cost of Stage 1 would be approximately \$321.3 million on a statewide basis, with the annual cost thereafter totaling approximately \$103.4 million on a statewide basis.³

Second, a critical consideration is that, from the perspective of the Gas Operators, it would be virtually impossible to complete either Stage 1 or Stage 2 in a 12-month period. For this reason, and reasons discussed in their initial Report, the Gas Operators do not support the Attorney General's recommendation on the inspection of gate boxes. However, the Gas Operators have engaged in the theoretical exercise of quantifying the cost of implementing this recommendation to be responsive to the Department.

Lastly, as noted in the footnotes included in the Gas Operator cost templates included herewith, the costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by each Gas Operator depending on system-specific factors such as whether inspections could be completed in conjunction with other field activities (and by the same personnel under applicable work rules), as well as the timing and scope of repairs and the accounting practices in place for recording

² As stated on the schedules prepared by the Gas Operators, the cost categories include: (1) non-field administrative costs to plan, implement and track inspection activities; (2) inspections; (3) raising and maintaining the gate boxes; and (4) miscellaneous costs such as the cost of re-paving excavated valve boxes.

³ Notably, both of these totals are based on a "snapshot-in-time" analysis, based on the number of valves located on each system as of December 31, 2005. To the extent that the number of valves located on the local distribution systems increases each year, with the costs of any inspection and maintenance program increasing accordingly.

these costs. As a result, the unit and total cost amounts listed in each category on the cost templates correlate to the field practices and accounting protocols of the particular Gas Operator reporting the totals, and therefore, do not serve as a basis for comparison between one or more operators.

(2) List how many valve boxes existed in the Commonwealth in 2005, including those on service lines, distribution mains and intrastate transmission lines.

The number of valves boxes existing in the Commonwealth in 2005, including those on service lines, distribution mains and intrastate transmission lines are identified for each separate distribution system in the attached schedules. The aggregate total is as follows:

TABLE 1

**Number of Valves in Commonwealth
As of December 31, 2005**

Type of Valve	Number
Critical Valves	3,248
Main Valves	147,173
Service Valves	940,845
Transmission Valves	11
TOTAL	1,091,357

(3) Provide complete and detailed documentation that demonstrates, for calendar year 2005:

- (a) the number of critical valves, as defined in 192.181, in each Operator's respective service territory;**
- (b) the total number of critical valves, as defined in 192.181, in the Commonwealth;**
- (c) the 2005 cost of inspecting these valves, as required by 192.747, in each Operator's respective service territory;**
- (d) the 2005 cost of inspecting these valves, as required by 192.747, in the Commonwealth.**

The responses to Requests (3)(a) and (c), above, are itemized in the individual cost templates submitted by the Gas Operators and attached herewith. The response to Request (3)(b) is set forth above in the Table 1, provided in response to Request (2). The response to Request (3)(d) is provided in the Summary Cost Analysis accompanying the Gas Operator templates.

SUMMARY COST ANALYSIS

Summary of Stage 1 Cost								
Bay State Gas Company					\$39,164,408			
The Berkshire Gas Company					\$3,316,816			
Blackstone Gas Company					\$44,000			
Fitchburg Gas and Electric Light Company					\$1,558,007			
Holyoke Gas and Electric Light Department					\$2,204,199			
KeySpan Energy Delivery New England					\$224,573,656			
Middleborough Gas and Electric Department					\$204,016			
New England Gas Company					\$9,629,386			
NSTAR Gas Company					\$40,164,340			
Wakefield Municipal Gas and Light Department					\$110,250			
Westfield Gas and Electric Light Department					\$415,129			
Total Estimated Cost for Stage 1					\$321,384,207			
Summary of Stage 2 Cost								
Bay State Gas Company					\$10,652,688			
The Berkshire Gas Company					\$1,678,522			
Blackstone Gas Company					\$31,500			
Fitchburg Gas and Electric Light Company					\$425,049			
Holyoke Gas and Electric Light Department					\$892,437			
KeySpan Energy Delivery New England					\$74,220,113			
Middleborough Gas and Electric Department					\$150,399			
New England Gas Company					\$3,029,192			
NSTAR Gas Company					\$12,046,555			
Wakefield Municipal Gas and Light Department					\$105,250			
Westfield Gas and Electric Light Department					\$238,776			
Annual Cost Estimated for Stage 2					\$103,470,481			
Summary of Critical Valve Cost								
Bay State Gas Company					\$39,365			
The Berkshire Gas Company					\$10,318			
Blackstone Gas Company					\$1,000			
Fitchburg Gas and Electric Light Company					\$15,017			
Holyoke Gas and Electric Light Department					\$19,808			
KeySpan Energy Delivery New England					\$330,540			
Middleborough Gas and Electric Department					\$2,258			
New England Gas Company					\$41,007			
NSTAR Gas Company					\$164,793			
Wakefield Municipal Gas and Light Department					\$200			
Westfield Gas and Electric Light Department					\$13,420			
Annual Cost Estimated for Critical Valves					\$637,726			

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Bay State Gas Company

DESCRIPTION OF SYSTEM EQUIPMENT

Year Ending December 31, 2005

<u>Type of Box</u>	<u>Total Number of Units</u>
Critical Valves	488
Main Valves	20,000
Service Valves	100,000
Transmission Valves	
TOTAL	<u>120,488</u>

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

		<u>Number of Units</u>	<u>FTEs Required</u>	<u>Cost Per Unit</u>	<u>Time Required</u>	<u>Total Annual Cost</u>
Non-Field Administration	(n/3)	120,488		\$1		\$120,488
Inspection	(n/4)	120,488		\$90		\$10,843,920
Raise and/or Maintain	(n/4)	90,000		\$295		\$26,550,000
Related Field Costs	(n/5)	15,000		\$110		\$1,650,000
TOTAL COST						<u>\$39,164,408</u>

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

		<u>Number of Units</u>	<u>FTEs Required</u>	<u>Cost Per Unit</u>	<u>Time Required</u>	<u>Total Annual Cost</u>
Non-Field Administration	(n/3)	120,488		\$1		\$120,488
Inspection	(n/4)	120,488		\$25		\$3,012,200
Raise and/or Maintain	(n/4)	24,000		\$295		\$7,080,000
Related Field Costs	(n/5)	4,000		\$110		\$440,000
TOTAL COST						<u>\$10,652,688</u>

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Bay State Gas Company

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)	488		\$1		\$488
Inspection	(n/4)	488		\$39		\$19,032
Raise and/or Maintain	(n/4)	49		\$295		\$14,455
Related Field Costs	(n/5)	49		\$110		\$5,390
TOTAL COST						<u>\$39,365</u>

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

n/2: Stage 1 and Stage 2 costs are based on the assumption that the Attorney General's proposal is adopted by the Department and inspection, maintenance and repair of all boxes on the operator's system, including critical valves, must be completed in each calendar year.

n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

n/4: Costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by the Gas Operators depending on system-specific factors such as whether inspections are completed in conjunction with other field activities and the timing and scope of repairs. Therefore, the totals listed in each category correlate to the practices and procedures of the Gas Operator reporting the totals.

n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

The Berkshire Gas Company

DESCRIPTION OF SYSTEM EQUIPMENT

Year Ending December 31, 2005

Type of Box	Total Number of Units
Critical Valves	72
Main Valves	505
Service Valves	26,436
Transmission Valves	4
TOTAL	26,945

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Unit	Time Required	Total Annual Cost
Non-Field Administrati (n/3)		2			\$140,000
Inspection (n/4)	26,945		\$76	1	\$2,047,820
Raise and/or Maintain (n/4)	5,389		\$76	2	\$819,128
Related Field Costs (n/5)					\$309,868
TOTAL COST					\$3,316,816

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Unit	Time Required	Total Annual Cost
Non-Field Administrati (n/3)		2			\$140,000
Inspection (n/4)	26,945		\$38	1	\$1,023,910
Raise and/or Maintain (n/4)	1,347		\$76	2	\$204,744
Related Field Costs (n/5)					\$309,868
TOTAL COST					\$1,678,522

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

The Berkshire Gas Company

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Unit	Time Required	Total Annual Cost
Non-Field Administrati (n/3)		0.05			\$3,500
Inspection (n/4)	72		\$76	1	\$5,472
Raise and/or Maintain (n/4)	4		\$76	2	\$608
Related Field Costs (n/5)					\$738
TOTAL COST					\$10,318

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

n/2: Stage 1 and Stage 2 costs are based on the assumption that the Attorney General's proposal is adopted by the Department and inspection, maintenance and repair of all boxes on the operator's system, including critical valves, must be completed in each calendar year.

n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

n/4: Costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by the Gas Operators depending on system-specific factors such as whether inspections are completed in conjunction with other field activities and the timing and scope of repairs. Therefore, the totals listed in each category correlate to the practices and procedures of the Gas Operator reporting the totals.

n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators**D.T.E. 06-48****September 6, 2006****Blackstone Gas Company****DESCRIPTION OF SYSTEM EQUIPMENT**

Year Ending December 31, 2005

Type of Box	Total Number of Units
Critical Valves	20
Main Valves	110
Service Valves	500
Transmission Valves	0
TOTAL	630

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)				
Inspection	(n/4)				
Raise and/or Maintain	(n/4)				
Related Field Costs	(n/5)				
TOTAL COST					\$44,000

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)				
Inspection	(n/4)				
Raise and/or Maintain	(n/4)				
Related Field Costs	(n/5)				
TOTAL COST					\$31,500

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Blackstone Gas Company

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)				
Inspection	(n/4)				
Raise and/or Maintain	(n/4)				
Related Field Costs	(n/5)				
TOTAL COST					<u>\$1,000</u>

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

n/2: Stage 1 and Stage 2 costs are based on the assumption that the Attorney General's proposal is adopted by the Department and inspection, maintenance and repair of all boxes on the operator's system, including critical valves, must be completed in each calendar year.

n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

n/4: Costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by the Gas Operators depending on system-specific factors such as whether inspections are completed in conjunction with other field activities and the timing and scope of repairs. Therefore, the totals listed in each category correlate to the practices and procedures of the Gas Operator reporting the totals.

n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Fitchburg Gas and Electric Light Company d/b/a Unitil

DESCRIPTION OF SYSTEM EQUIPMENT

Year Ending December 31, 2005

Type of Box	Total Number of Units
Critical Valves	55
Main Valves	537
Service Valves	4,300
Transmission Valves	0
TOTAL	<u>4,892</u>

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)	1	1	\$85,000		\$190,000
Inspection	(n/4)					\$0
Raise and/or Maintain	(n/4)	4837	14	\$87.71	14320	\$1,256,007
Related Field Costs	(n/5)					<u>\$112,000</u>
TOTAL COST						<u>\$1,558,007</u>

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)		1			\$130,000
Inspection	(n/4)	4300	1	\$57.55	2150	\$123,733
Raise and/or Maintain	(n/4)	1397	2	\$87.71	1862	\$163,316
Related Field Costs	(n/5)					<u>\$8,000</u>
TOTAL COST						<u>\$425,049</u>

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Fitchburg Gas and Electric Light Company d/b/a Unitil

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)					\$6,000
Inspection	(n/4)					\$0
Raise and/or Maintain	(n/4)	55		\$87.71	80	\$7,017
Related Field Costs	(n/5)					<u>\$2,000</u>
TOTAL COST						<u><u>\$15,017</u></u>

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

n/2: Stage 1 and Stage 2 costs are based on the assumption that the Attorney General's proposal is adopted by the Department and inspection, maintenance and repair of all boxes on the operator's system, including critical valves, must be completed in each calendar year.

n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

n/4: Costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by the Gas Operators depending on system-specific factors such as whether inspections are completed in conjunction with other field activities and the timing and scope of repairs. Therefore, the totals listed in each category correlate to the practices and procedures of the Gas Operator reporting the totals.

n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Holyoke Gas Electric Department

DESCRIPTION OF SYSTEM EQUIPMENT

Year Ending December 31, 2005

<u>Type of Box</u>	<u>Total Number of Units</u>	
Critical Valves	60	
Main Valves	1,229	for all pressures; excludes critical valves above
Service Valves	7,500	for all pressures; buried valves only
Transmission Valves	0	
TOTAL	<u>8,789</u>	buried valves

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

		<u>Number of Units</u>	<u>FTEs Required</u>	<u>Cost Per Hour or Per Unit</u>	<u>Time Required</u>	<u>Total Annual Cost</u>
Non-Field Administration	(n/3)	2	2.0	\$55,000	for the FTE	\$110,000
Inspection	(n/4)	8,789	11.0	\$75.60	per valve	\$664,448
Raise and/or Maintain	(n/4)	2,487	18.0	\$374.82	per valve	\$932,294
Related Field Costs	(n/5)	2,487	100% contract	\$200.00	per valve	<u>\$497,457</u>
TOTAL COST						<u>\$2,204,199</u>

Note: No labor overhead or vehicle transportation is included in costs.

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

		<u>Number of Units</u>	<u>FTEs Required</u>	<u>Cost Per Hour or Per Unit</u>	<u>Time Required</u>	<u>Total Annual Cost</u>
Non-Field Administration	(n/3)	1	1	\$55,000	for the FTE	\$55,000
Inspection	(n/4)	8,789	5.5	\$37.80	per valve	\$332,224
Raise and/or Maintain	(n/4)	879	6.3	\$374.82	per valve	\$329,432
Related Field Costs	(n/5)	879	100% contract	\$200.00	per valve	<u>\$175,780</u>
TOTAL COST						<u>\$892,437</u>

Note: No labor overhead or vehicle transportation is included in costs.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Holyoke Gas Electric Department

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)	0.10	0.10	\$55,000		\$5,500
Inspection	(n/4)	60	0.084	\$75.60	per valve	\$4,536
Raise and/or Maintain	(n/4)	17	0.118	\$374.82	per valve	\$6,372
Related Field Costs	(n/5)	17	100% contract	\$200.00	per valve	\$3,400
TOTAL COST						<u>\$19,808</u>

Note: No labor overhead or vehicle transportation is included in costs.

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

n/2: Stage 1 and Stage 2 costs are based on the assumption that the Attorney General's proposal is adopted by the Department and inspection, maintenance and repair of all boxes on the operator's system, including critical valves, must be completed in each calendar year.

n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

n/4: Costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by the Gas Operators depending on system-specific factors such as whether inspections are completed in conjunction with other field activities and the timing and scope of repairs. Therefore, the totals listed in each category correlate to the practices and procedures of the Gas Operator reporting the totals.

n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

KeySpan Energy Delivery New England

DESCRIPTION OF SYSTEM EQUIPMENT

Year Ending December 31, 2005

Type of Box	Total Number of Units	
Critical Valves	1,722	
Main Valves	97,595	
Service Valves	628,622	
Transmission Valves	0	Included in total for main valves
TOTAL	727,939	

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration (n/3)		12.5		Full Time	\$1,171,800
Inspection (n/4)	727,939	642.3	\$128		\$92,812,223
Raise and/or Maintain (n/4)	520,608	918.72	\$251		\$130,589,634
Related Field Costs (n/5)	Current Paving Inspectors to continue, included above				
TOTAL COST					\$224,573,656

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration (n/3)		12.5		Full time	\$1,171,800
Inspection (n/4)	727,939	428.20	\$75		\$54,595,425
Raise and/or Maintain (n/4)	72,708	128.31	\$254		\$18,452,888
Related Field Costs (n/5)	Current Paving Inspectors to continue, included above				
TOTAL COST					\$74,220,113

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

KeySpan Energy Delivery New England

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration (n/3)		0.5			\$37,800
Inspection (n/4)	1,722		\$170		\$292,740
Raise and/or Maintain (n/4)	Included above				
Related Field Costs (n/5)	Included above				
TOTAL COST					<u>\$330,540</u>

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

n/2: Stage 1 and Stage 2 costs are based on the assumption that the Attorney General's proposal is adopted by the Department and inspection, maintenance and repair of all boxes on the operator's system, including critical valves, must be completed in each calendar year.

n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

n/4: Costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by the Gas Operators depending on system-specific factors such as whether inspections are completed in conjunction with other field activities and the timing and scope of repairs. Therefore, the totals listed in each category correlate to the practices and procedures of the Gas Operator reporting the totals.

n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Middleborough Gas Electric Department

DESCRIPTION OF SYSTEM EQUIPMENT

Year Ending December 31, 2005

Type of Box	Total Number of Units
Critical Valves	84
Main Valves	272
Service Valves	3,772
Transmission Valves	0
TOTAL	4,128

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration (n/3)					\$6,000
Inspection (n/4)	1600		\$40	0.25	\$16,000
Raise and/or Maintain (n/4)	2528		\$48	1.5	\$182,016
Related Field Costs (n/5)					
TOTAL COST					\$204,016

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration (n/3)					\$3,000
Inspection (n/4)	2272		\$42	0.25	\$23,856
Raise and/or Maintain (n/4)	1961		\$50	1.25	\$123,543
Related Field Costs (n/5)					
TOTAL COST					\$150,399

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Middleborough Gas Electric Department

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)					\$1,000
Inspection	(n/4)	84		\$38	0.25	\$798
Raise and/or Maintain	(n/4)	8		\$46	1.25	\$460
Related Field Costs	(n/5)					
TOTAL COST						<u>\$2,258</u>

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

n/2: Stage 1 and Stage 2 costs are based on the assumption that the Attorney General's proposal is adopted by the Department and inspection, maintenance and repair of all boxes on the operator's system, including critical valves, must be completed in each calendar year.

n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

n/4: Costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by the Gas Operators depending on system-specific factors such as whether inspections are completed in conjunction with other field activities and the timing and scope of repairs. Therefore, the totals listed in each category correlate to the practices and procedures of the Gas Operator reporting the totals.

n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

New England Gas

DESCRIPTION OF SYSTEM EQUIPMENT

Year Ending December 31, 2005

Type of Box	Total Number of Units
Critical Valves	146
Main Valves	2,713
Service Valves	26,959
Transmission Valves	0
TOTAL	29,818

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration (n/3)					
Inspection (n/4)	18213	2	\$251	1.5 hrs	\$4,571,463
Raise and/or Maintain (n/4)	11605	2	\$436	2.5 hrs	\$5,057,923
Related Field Costs (n/5)					
TOTAL COST					\$9,629,386

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration (n/3)					
Inspection (n/4)	28328	2	\$84	0.5	\$2,379,552
Raise and/or Maintain (n/4)	1490	2	\$436	2.5 hrs	\$649,640
Related Field Costs (n/5)					
TOTAL COST					\$3,029,192

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

New England Gas

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)					
Inspection	(n/4)	139	2	\$281		\$39,059
Raise and/or Maintain	(n/4)	7	2	\$281		\$1,967
Related Field Costs	(n/5)					
TOTAL COST						<u>\$41,007</u>

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

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n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

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n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

NSTAR Gas Company

DESCRIPTION OF SYSTEM EQUIPMENT

Year Ending December 31, 2005

Type of Box	Total Number of Units
Critical Valves	583
Main Valves	23,352
Service Valves	133,463
Transmission Valves	3
TOTAL	157,401

STAGE 1: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)	2080	20	\$53	1	\$2,196,480
Inspection	(n/4)	157401	1	\$61	0.5	\$4,799,943
Raise and/or Maintain	(n/4)	113329	2	\$62	1.5	\$21,041,743
Related Field Costs	(n/5)	113329		\$107		\$12,126,173
TOTAL COST						\$40,164,340

STAGE 2: COST ANALYSIS (n/1, n/2)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)	2080	5	\$53	1	\$549,120
Inspection	(n/4)	157401	1	\$61	0.5	\$4,799,943
Raise and/or Maintain	(n/4)	23610	2	\$62	1.5	\$4,383,697
Related Field Costs	(n/5)	23610		\$98		\$2,313,795
TOTAL COST						\$12,046,555

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

NSTAR Gas Company

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)	583	1	\$30	0.125	\$2,186
Inspection	(n/4)	583	2	\$64	2	\$148,782
Raise and/or Maintain	(n/4)	12	2	\$62	1.5	\$2,165
Related Field Costs	(n/5)	583		\$10	2	\$11,660
TOTAL COST						\$164,793

NOTES

n/1: Stage 1 represents the first year of the program in which all valve boxes are inspected and any necessary repairs are made. Stage 2 represents the annual costs for inspecting and maintaining valve boxes following the completion of Stage 1 repairs.

n/2: Stage 1 and Stage 2 costs are based on the assumption that the Attorney General's proposal is adopted by the Department and inspection, maintenance and repair of all boxes on the operator's system, including critical valves, must be completed in each calendar year.

n/3: Non-field administration includes costs associated with coordinating and planning inspection, maintenance and repair programs for valve boxes, tracking program activities, maintaining records and the cost of dig safe compliance where repairs are necessary. Labor includes supervisors, inspectors, planners and clerical personnel to administer programs.

n/4: Costs associated with inspecting, raising, maintaining and repairing valve boxes are classified and tracked differently by the Gas Operators depending on system-specific factors such as whether inspections are completed in conjunction with other field activities and the timing and scope of repairs. Therefore, the totals listed in each category correlate to the practices and procedures of the Gas Operator reporting the totals. Pre-marks included in the time to maintain/raise. For critical valves, inspection included greasing and exercising valves.

n/5: Related field costs include the cost of removing and re-installing paving, police details, permits and other miscellaneous costs.

n/6: The requirement and procedures for inspection, maintenance and repair of critical valves differ from those associated with main valves and service valves. Therefore, costs associated with adhering to critical valve requirements are not necessarily indicative of the costs that would be incurred to inspect, maintain and repair other valves on the system.

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Wakefield Municipal Gas and Light Department

DESCRIPTION OF SYSTEM EQUIPMENT	
Year Ending December 31, 2005	
Type of Box	Total Number of Units
Critical Valves	7
Main Valves	291
Service Valves	1,792
Transmission Valves	4
TOTAL	2,094

STAGE 1: COST ANALYSIS (n/1, n/2)					
Year Ending December 31, 2005					
	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)				\$100,250
Inspection	(n/4)				
Raise and/or Maintain	(n/4)				
Related Field Costs	(n/5)				\$10,000
TOTAL COST					\$110,250

STAGE 2: COST ANALYSIS (n/1, n/2)					
Year Ending December 31, 2005					
	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)				\$100,250
Inspection	(n/4)				
Raise and/or Maintain	(n/4)				
Related Field Costs	(n/5)				\$5,000
TOTAL COST					\$105,250

Response of the Gas Operators

D.T.E. 06-48

September 6, 2006

Wakefield Municipal Gas and Light Department

CRITICAL VALVE COST ANALYSIS (n/6)

Year Ending December 31, 2005

	Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)				
Inspection	(n/4)				
Raise and/or Maintain	(n/4)				
Related Field Costs	(n/5)				\$200
TOTAL COST					

NOTES

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Response of the Gas Operators
D.T.E. 06-48
September 6, 2006

Westfield Gas and Electric Light Department

DESCRIPTION OF SYSTEM EQUIPMENT	
Year Ending December 31, 2005	
Type of Box	Total Number of Units
Critical Valves	91
Main Valves	569
Service Valves	7,501
Transmission Valves	0
TOTAL	8,161

STAGE 1: COST ANALYSIS (n/1, n/2)						
Year Ending December 31, 2005						
		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)	8,161	0.015	\$0.64		\$5,182
Inspection	(n/4)	8,161	2.98	\$97	0.25	\$197,662
Raise and/or Maintain	(n/4)	4,053	2.96	\$97	0.5	\$196,340
Related Field Costs	(n/5)	569	0.274	\$28		\$15,945
TOTAL COST						\$415,129

STAGE 2: COST ANALYSIS (n/1, n/2)						
Year Ending December 31, 2005						
		Number of Units	FTEs Required	Cost Per Hour or Per Unit	Time Required	Total Annual Cost
Non-Field Administration	(n/3)	8,161	0.015	\$0.64		\$5,182
Inspection	(n/4)	8,161	2.98	\$97	0.25	\$197,662
Raise and/or Maintain	(n/4)	413	0.49	\$97	0.5	\$19,987
Related Field Costs	(n/5)	569	0.274	\$28		\$15,945
TOTAL COST						\$238,776

Response of the Gas Operators
D.T.E. 06-48
September 6, 2006

Westfield Gas and Electric Light Department

CRITICAL VALVE COST ANALYSIS (n/6)
Year Ending December 31, 2005

		Number of	FTEs	Cost Per		Total Annual
		Units	Required	Hour or Per	Time Required	Cost
				Unit		
Non-Field Administration	(n/3)	91	0.015	\$1		\$58
Inspection	(n/4)	91		\$97		\$8,816
Raise and/or Maintain	(n/4)	9		\$388		\$3,526
Related Field Costs	(n/5)	9	0.018	\$112		\$1,020
TOTAL COST						\$13,420

NOTES

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